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Abstract:
PROBLEM TO BE SOLVED: To suppress deterioration of transmission/reception throughput by regulating the connection to a roaming station when a connection request exceeding a previously decided number is made to an access point from the roaming station in a service area managed by an arbitrary access point among plural access points. SOLUTION: When the power of the roaming station 1 is turned on and it roams from out of the service area, the connection request containing a self-identifier is transmitted to the access point 2. The access point 2 adds an access point number of the connection request and transmits it to a controller 3. The controller 3 stores the number of connection possible stations at every access point 2 in a storage device 31 and executes recognition processing of the connection request. When connection is possible, a connection request reception is returned to the access point 2, and connection request denial when connection is denied. The access point 2 returns it to the roaming station 1.

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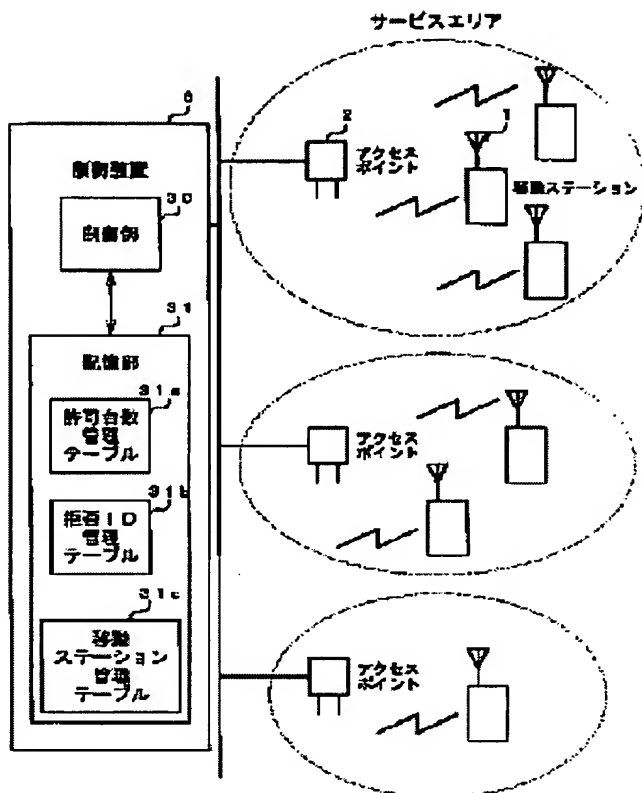
JPO Machine translation abstract:
(57) Abstract
SUBJECT If the number of move stations increases, the problem that a transceiver throughput falls will be solved, connection of a move station is restricted under a specific condition, and the wireless LAN system which can control the fall of a transceiver throughput is provided.
Means for Solution Memorize connection permission conditions of the move station 1 in each access point 2 in the control device 3, and a connection request from the move station 1 is received, Only when it judges whether connection permission conditions are suited and suits with the control device 3, it is a wireless LAN system to which connection is permitted and to which the move station 1 is connected.

Claim(s)
Claim 1 In a wireless LAN system which has two or more access points, from a move station in a service area which arbitrary access points manage, A wireless LAN system characterized by restricting connection of said move station when it succeeds in a connection request exceeding the number beforehand defined to said access point.
Claim 2 When it succeeds in a connection request from a move station in a service area which arbitrary access points manage in a wireless LAN system which has two or more access points, A wireless LAN system restricting connection of said move station by an identifier of a move station beforehand appointed to said access point.

Detailed Description of the Invention
0001
Field of the Invention This invention relates to the wireless LAN system which is applied to a wireless LAN system, especially can restrict connection of a move station for every access point.

0002
Description of the Prior Art The conventional wireless LAN system is explained using drawing 8. Drawing 8 is a block diagram showing the outline composition of the conventional wireless

LAN system. The move station 1 which performs data communications mutually via a radio transmission line and cable LAN as the conventional wireless LAN system is shown in drawing 8, Radio with the move station 1 in a service area was performed, and also it comprised access point 2' which functions the bridge which connects cable LAN between non-railroad sections.

0003 In the conventional wireless LAN system, one radio medium is assigned to access point 2', and said radio medium is shared by many move stations 1 in a service area. That is, the frequency band assigned to access point 2' as a radio medium is used, dividing into the message channel for data communications, the request channel for a message channel request to print out files, and the response channel for the response to a request.

0004 And the accessing method between access point 2' and the move station 1 has a common radio-medium access control system of the reserving system which reserves the channel used in advance of data communications. When requiring data communications in the direction of access point 2' from the move station 1, specifically, the request frame (connection request) for a message channel request to print out files is transmitted from the move station 1 to access point 2' using a request channel.

0005 And access point 2' which received the request frame from the move station 1 which probably exist in the service area performs scheduling, and returns the move station 1 using a response channel by making propriety of a message channel use request to print out files into a response frame.

0006 And the move station 1 which received this response frame uses a message channel for the scheduled time, and transmits transmission data to access point 2' at it.

0007

Problem(s) to be Solved by the Invention However, in the conventional wireless LAN system. The number of times per unit time to which the message channel of a radio medium is assigned decreased to one set of the move station 1, and there was a problem that a transceiver throughput will fall, so that there were many move stations 1 linked to one access point 2'.

0008 Since it was altogether connectable, the move station 1 which requires connection in a service area had the problem that the security management resulting from using radio as a transmission medium was not enough.

0009 This invention by having been accomplished in view of the above-mentioned actual condition, and controlling connection of the move station in a service area beforehand according to the terms of the license set up for every access point, Connection of a move station is restricted under a specific condition, and it aims at providing the wireless LAN system which can control the fall of a transceiver throughput.

0010

Means for Solving the Problem The invention according to claim 1 for solving a problem of the above-mentioned conventional example, In a wireless LAN system which has two or more access points in a wireless LAN system, From a move station in a service area which arbitrary access points manage, When it succeeds in a connection request exceeding the number beforehand defined to said access point, it is characterized by restricting connection of said move station, and connection of a move station in a specific access point can be restricted with the number of connection pedestals.

0011 The invention according to claim 2 for solving a problem of the above-mentioned conventional example, In a wireless LAN system which has two or more access points in a wireless LAN system, When it succeeds in a connection request from a move station in a service area which arbitrary access points manage, It is characterized by restricting connection of said move station by an identifier of a move station beforehand appointed to said access point, and connection of a move station in a specific access point can be restricted by an identifier of a move station.

0012

Embodiment of the Invention The embodiment is described about an claimed invention, referring to Drawings. The wireless LAN system concerning this invention forms the control device which performs connection admission control of the move station in the access point connected via cable LAN, Memorize the identifier of the number and a move station, etc. in a control device as connection permission conditions for the move station in each access point, and the connection request from a move station is received, Since connection is permitted and a move station is connected only when it judges whether connection permission conditions are suited and suits with a control device, under a specific condition, connection of a move station can be restricted for every access point.

0013 First, the composition of the wireless LAN system concerning this invention is explained using drawing 1. Drawing 1 is a configuration block figure of the wireless LAN system concerning this invention. The same numerals are attached and explained about the portion which takes the same composition as drawing 8.

0014 The wireless LAN system (this system) of this invention comprises the move station 1 and the access point 2 as the same portion as the conventional wireless LAN system, and also the control device 3 is formed as a characterizing portion of this invention.

0015 Next, each part of this system is explained concretely. The move station 1 is completely the same as usual, and is a device which communicates mutually by connecting with wireless LAN. And the time of the power supply being turned on in the service area which the move station 1 manages in a certain access point 2, Communication will be henceforth possible, if the connection request containing a self identifier (ID) is transmitted to the access point 2 and connection-request reception is received from the access point 2, when it has moved from the outside of this service area.

0016 The move station 1 memorizes an identifier (ID) to the inside, and adds the identifier to the connection request to the access point 2. As an identifier of the move station 1, when the interface protocol of cable LAN sets to Ethernet and IEEE802.3, for example, it is most effective to assign the MAC Address which is an address of a meaning on a network as an identifier of a move station.

0017 While the access point 2 is a device which performs radio transmission and reception with the move station 1, it has a function equivalent to the bridge which connects basic sir BIRUERIA (Basic Service Area:BSA) and backbone LAN (cable LAN) of radio. That is, the header for cable LAN is added to the data received from between non-railroad sections, and it sends out to cable LAN, or the header for between non-railroad sections is added to the data conversely received from cable LAN, and it sends out between non-railroad sections.

0018 And the access point 2 has memorized the access point number inside as a self identifier, into the header for cable LAN, incorporates an access point number and transmits.

0019 It is connected with the access point 2 via cable LAN, and the control device 3 controls the connection permission of the move station 1 in the access point 2.

0020 As the composition inside the control device 3 is shown in drawing 1, it comprises the control section 30 and the storage parts store 31, and the number management table 31a of permission, refusal ID management table 31b, and the move station management table 31c are memorized by the storage parts store 31.

0021 The number management table 31a of permission is a table which manages the number of a connection permission of the move station 1, and the junction state of the move station 1 every access point 2.

0022 The number management table 31a of permission of this invention comprises:
It is the offset a as shown in drawing 2.
Access point number b.
The number c of permission.
A several d connection pedestal.
Drawing 2 is a figure showing the example of a format and the example of storing of the number management table 31a of permission which are memorized by the control device 3 of this invention.

0023 The offset a is a sequential number for several minutes of the access point 2 connected to this wireless LAN system by cable LAN. While the access point number b is an identifier of the access point 2, it shows a BSA number.

0024 The number c of permission memorizes the number of a connection permission of the move station 1 in the access point 2 set up beforehand as connection permission conditions. When the number c of permission is set as 0, connection of the move station 1 in this access point 2 is refused unconditionally. A several d connection pedestal memorizes the number of connection pedestals of the actual condition in the access point 2.

0025 Refusal ID management table 31b is a table which manages the identifier (ID) of the move station 1 which refuses connection every access point 2.

0026 Refusal ID management table 31b of this invention comprises:
It is the offset e as shown in drawing 3.
Access point number f.
Refusal IDg.
Drawing 3 is a figure showing the example of a format and the example of storing of refusal ID management table 31b which are memorized by the control device 3 of this invention.

0027 The offset e is a sequential number for several refusal ID minutes set up to the access point 2 connected to this wireless LAN system by cable LAN. While the access point number f is an identifier of the access point 2, it shows a BSA number. The refusal IDg is an identifier (ID) of a move station which refuses connection in the access point 2 as connection permission conditions.

0028 The move station management table 31c comprises the offset h, the access point number i and move station identifier j, and connection-timer k, as shown in drawing 4. Drawing 4 is a figure showing the example of a format and the example of storing of the move station management table 31c which are memorized by the control device 3 of this invention.

0029 The offset h is a sequential number for several minutes of the move station 1 connected to the access point 2 connected to this wireless LAN system by cable LAN. While the access point number i is an identifier of the access point 2, it shows a BSA number.

0030 Move station identifier j is an identifier (ID) of the move station 1 connected in the access point 2. Connection-timer k is a timer which manages the connected state of the move station 1 under connection with the access point 2, and, specifically, has managed the time to registration cancellation.

0031 And when the control device 3 is new and receives the connection request from the move station 1 via the access point 2 actually, The access point number i and move station identifier j are memorized, the specific time (the maximum long time to registration cancellation) beforehand provided in connection-timer k is set up, and the decrement of the time of connection-timer k is carried out one by one henceforth.

0032 And if the time of connection-timer k is set to 0, it will be judged that it was no longer a connected state, and the record will be deleted from the move station management table 31c. If before deletion has a connection request from the same access point number i and move station identifier j again, the maximum long time to registration cancellation will be set and reset by connection-timer k then.

0033 The control section 30 controls the connection permission of the move station 1 in the access point 2, and specifically, Connection-admission-control processing which controls the connection permission to the connection request from the move station 1 received via the access point 2, and move station management processing which manages the move station 1 connected to the access point 2 under management are performed.

0034 First, it explains flowing into connection-admission-control processing of the control section 30 using drawing 5. Drawing 5 is a flow chart figure showing the flow of the connection-admission-control processing in the control section 30 of the control device 3 of this invention.

0035 The connection-admission-control processing in the control section 30 of the control device 3 of this invention, Will be started if a connection request is received from the access point 2, and a connection request judges in the right (100), and a right case (Yes), It is judged whether an access point number with a connection request and the combination of the move station identifier are registered into the move station management table 31c (101).

0036 And when not registered, (No) refers to the number management table 31a of permission, It judges whether the number of permission corresponding to the number of the access point 2 which transmitted the connection request is 0 (102), and when it is not 0 (Yes), it is judged whether the number of connection pedestals corresponding to the number of the access point 2 is smaller than the number of permission (104).

0037 And when the number of connection pedestals is smaller than the number of permission, (Yes), With reference to refusal ID management table 31b, it is judged whether ID of the move station 1 is refusal ID corresponding to the number of the access point 2 (106), If it is not refusal ID (Yes), connection-request reception is transmitted to the access point 2 (110), and it will add to the number of connection pedestals in the number management table 31a of permission one, and will update (120), registration to the move station management table 31c will be performed (122), and connection-admission-control processing will be ended.

0038 Here, the registration to the move station management table 31c is processing which sets the maximum long time to the registration cancellation which stores in the move station management table 31c the access point number i and move station identifier j which transmitted the connection request, and is defined further beforehand as connection-timer k.

0039 On the other hand, in the processing 101, when registering with the move station management table 31c (Yes), Connection-request reception is transmitted to the access point 2 (130), the maximum long time to registration cancellation is set up and reset to connection-timer k of the move station identifier of the move station management table 31c concerned (132), and connection-admission-control processing is ended.

0040 When a connection request is not right in the processing 100 and the number of permission is 0 in (No) and the processing 102, on the other hand, (No), When the number of connection pedestals is not smaller than the number of permission in the processing 104 and it is refusal ID in (No) and the processing 106, (No) transmits connection-request refusal to the access point 2 (112), and ends connection-admission-control processing.

0041 Judged, in processing of drawing 5, when it was not registered whether the access point number which transmitted the connection request, and the combination of the move station identifier are registered into the move station management table 31c, it progressed to the processing 102 as new, but. When arbitrary move station identifiers are registered in combination with another access point, The record is deleted for the registration concerned from the move station management table 31c, and one, after subtracting and updating, if it is made to progress to the processing 102, the number of connection pedestals can be more strictly managed for the number of connection pedestals in the access point concerned in the number management table 31a of permission.

0042 Although the above-mentioned explanation described that ID of the move station 1 which refuses connection was registered into refusal ID management table 31b, and the connection request from registered ID was refused, Conversely, ID of the move station 1 which permits connection is registered, and you may make it only registered ID permit registration.

0043 Next, it explains flowing into the move station management processing of the control section 30 using drawing 6. Drawing 6 is a flow chart figure showing the flow of the move station management processing in the control section 30 of the control device 3 of this invention. Drawing 6 shows the processing to one move station registered into the move station management table 31c, and will repeat the same processing to all the registered move stations actually.

0044 The move station management processing in the control section 30 of the control device 3 of this invention, It is started for every update-units time of connection-timer k set up beforehand, and only update-units time subtracts connection-timer k of the move station management table 31c (202), It judges whether the value of connection-timer k was set to 0 (204), and when it is not 0, (No) ends move station management processing.

0045 On the other hand, when the value of connection-timer k is set to 0, registration is erased (210), the several d connection pedestal of the number management table 31a of permission about the access point of the move station concerned is subtracted from the move station management table 31c one time (212), and move station management processing is ended.

0046 Next, operation of the wireless LAN system of this invention is explained using drawing 1 and drawing 7. Drawing 7 is an explanatory view showing the connect control sequence of the move station 1 in the wireless LAN system of this invention. In the wireless LAN system of this invention, when the power supply of the move station 1 is turned on under BSA which a certain access point 2 manages, when the move station 1 has moved from the outside of this BSA, the connection request containing a self identifier (ID) is transmitted to the access point 2.

0047 The access point 2 which received the connection request from the move station 1 adds the access point number of self to a connection request, and transmits to the control device 3.

0048 And the control device 3 which received the connection request from the access point 2, as connection-admission-control processing, confirming processing of a connection request is performed and connection is possible -- if it is (O.K.), connection-request reception will be replied to the access point 2 by return, and if it is a connection refusal (NG), connection-request refusal will be replied to the access point 2 by return.

0049 Here, as confirming processing of a connection request, the contents of the connection request are right, and when the combination of the move station 1 and the access point 2 which carried out the connection request is already registered into the move station management table 31c, it judges with connection being only possible. When not registering with the move station management table 31c, the propriety of connection is judged according to the number of permission and refusal ID which are the terms of the license set up beforehand, and if connection is possible, the number of connection pedestals of the number management table 31a of permission will be added one time.

0050 In the control device 3, in order to manage the number of permission which is one of the terms of the license, the junction state of the move station 1 connected to the access point 2 is managed. That is, if a connection request comes from the access point 2, the maximum long time to registration cancellation will be set as the move station management table 31c as a connection timer with an access point number and a move station identifier.

0051 And if the value of a connection timer is subtracted for every update-units time and it is

set to 0, registration will be erased and the number of connection pedestals of the number management table 31a of permission will also be reduced.

0052 And the access point 2 which received connection-request reception or connection-request refusal replies the connection-request reception or connection-request refusal to the move station 1.

0053 If according to the wireless LAN system of this invention the number of a connection permission for every access point 2 is beforehand memorized to the storage parts store 31 in the control device 3 and the control device 3 receives the connection request from the move station 1 by access point 2 course, Since connection-request reception is returned to the move station 1 when the terms of the license whether the number of connection pedestals is within the limits of the number of a connection permission are judged about the access point 2 concerned and it conforms to terms of the license, The number of the move stations 1 which connects every access point 2 can be restricted, the fall of the transceiver throughput between the move station 1 and the access point 2 can be controlled, and there is an effect which makes possible traffic control in the whole wireless LAN system.

0054 According to the wireless LAN system of this invention, refusal ID or permission ID for every access point 2 is beforehand memorized to the storage parts store 31 in the control device 3, If the control device 3 receives the connection request from the move station 1 by access point 2 course, About the access point 2 concerned. **whether the move station 1 concerned is refusal ID in the access point 2, and** Or since connection-request reception is returned to the move station 1 when the terms of the license whether to be permission ID are judged and it conforms to terms of the license, It is effective in being realizable of proper connection of the move station in a specific area by eliminating connection of the unsuitable move station 1, or connecting the proper move station 1 to the move station 1 connected every access point 2.

0055 There is an effect which can cancel penetration of the unjust terminals in the case of connecting radio to electric telecommunication lines via the insecurity to the security resulting from considering it as the transmission medium, for example, a network, etc., incorrect fee collection, erroneous connection, etc. by managing connection with this system for every move station.

0056

Effect of the Invention Since it is considered as the wireless LAN system which restricts connection of a move station when it succeeds in a connection request from a move station exceeding the number beforehand defined to arbitrary access points according to the invention according to claim 1, Connection of the move station in a specific access point can be restricted with the number of connection pedestals, and there is an effect which can control the fall of the transceiver throughput between non-railroad sections.

0057 When it succeeds in a connection request from a move station in an access point according to the invention according to claim 2, Since it is considered as the wireless LAN system which restricts connection of a move station by the identifier of the move station beforehand appointed to the access point, Connection of the move station in a specific access point can be restricted by the identifier of a move station, and it is effective in being realizable of proper connection of a move station in a specific area.

Field of the Invention This invention relates to the wireless LAN system which is applied to a wireless LAN system, especially can restrict connection of a move station for every access point.

Description of the Prior Art The conventional wireless LAN system is explained using drawing 8. Drawing 8 is a block diagram showing the outline composition of the conventional wireless LAN system. The move station 1 which performs data communications mutually via a radio transmission line and cable LAN as the conventional wireless LAN system is shown in drawing 8, Radio with the move station 1 in a service area was performed, and also it comprised access point 2' which functions the bridge which connects cable LAN between non-railroad sections.

0003 In the conventional wireless LAN system, one radio medium is assigned to access point 2', and said radio medium is shared by many move stations 1 in a service area. That is, the

frequency band assigned to access point 2' as a radio medium is used, dividing into the message channel for data communications, the request channel for a message channel request to print out files, and the response channel for the response to a request.

0004 And the accessing method between access point 2' and the move station 1 has a common radio-medium access control system of the reserving system which reserves the channel used in advance of data communications. When requiring data communications in the direction of access point 2' from the move station 1, specifically, the request frame (connection request) for a message channel request to print out files is transmitted from the move station 1 to access point 2' using a request channel.

0005 And access point 2' which received the request frame from the move station 1 which probably exist in the service area performs scheduling, and returns the move station 1 using a response channel by making propriety of a message channel use request to print out files into a response frame.

0006 And the move station 1 which received this response frame uses a message channel for the scheduled time, and transmits transmission data to access point 2' at it.

Effect of the Invention Since it is considered as the wireless LAN system which restricts connection of a move station when it succeeds in a connection request from a move station exceeding the number beforehand defined to arbitrary access points according to the invention according to claim 1, Connection of the move station in a specific access point can be restricted with the number of connection pedestals, and there is an effect which can control the fall of the transceiver throughput between non-railroad sections.

0057 When it succeeds in a connection request from a move station in an access point according to the invention according to claim 2, Since it is considered as the wireless LAN system which restricts connection of a move station by the identifier of the move station beforehand appointed to the access point, Connection of the move station in a specific access point can be restricted by the identifier of a move station, and it is effective in being realizable of proper connection of a move station in a specific area.

Problem(s) to be Solved by the Invention However, in the conventional wireless LAN system. The number of times per unit time to which the message channel of a radio medium is assigned decreased to one set of the move station 1, and there was a problem that a transceiver throughput will fall, so that there were many move stations 1 linked to one access point 2'.

0008 Since it was altogether connectable, the move station 1 which requires connection in a service area had the problem that the security management resulting from using radio as a transmission medium was not enough.

0009 This invention by having been accomplished in view of the above-mentioned actual condition, and controlling connection of the move station in a service area beforehand according to the terms of the license set up for every access point, Connection of a move station is restricted under a specific condition, and it aims at providing the wireless LAN system which can control the fall of a transceiver throughput.

Means for Solving the Problem The invention according to claim 1 for solving a problem of the above-mentioned conventional example, In a wireless LAN system which has two or more access points in a wireless LAN system, From a move station in a service area which arbitrary access points manage, When it succeeds in a connection request exceeding the number beforehand defined to said access point, it is characterized by restricting connection of said move station, and connection of a move station in a specific access point can be restricted with the number of connection pedestals.

0011 The invention according to claim 2 for solving a problem of the above-mentioned conventional example, In a wireless LAN system which has two or more access points in a wireless LAN system, When it succeeds in a connection request from a move station in a service area which arbitrary access points manage, It is characterized by restricting connection of said

move station by an identifier of a move station beforehand appointed to said access point, and connection of a move station in a specific access point can be restricted by an identifier of a move station.
0012
Embodiment of the Invention The embodiment is described about an claimed invention, referring to Drawings. The wireless LAN system concerning this invention forms the control device which performs connection admission control of the move station in the access point connected via cable LAN, Memorize the identifier of the number and a move station, etc. in a control device as connection permission conditions for the move station in each access point, and the connection request from a move station is received, Since connection is permitted and a move station is connected only when it judges whether connection permission conditions are suited and suits with a control device, under a specific condition, connection of a move station can be restricted for every access point.
0013 First, the composition of the wireless LAN system concerning this invention is explained using drawing 1. Drawing 1 is a configuration block figure of the wireless LAN system concerning this invention. The same numerals are attached and explained about the portion which takes the same composition as drawing 8.
0014 The wireless LAN system (this system) of this invention comprises the move station 1 and the access point 2 as the same portion as the conventional wireless LAN system, and also the control device 3 is formed as a characterizing portion of this invention.
0015 Next, each part of this system is explained concretely. The move station 1 is completely the same as usual, and is a device which communicates mutually by connecting with wireless LAN. And the time of the power supply being turned on in the service area which the move station 1 manages in a certain access point 2, Communication will be henceforth possible, if the connection request containing a self identifier (ID) is transmitted to the access point 2 and connection-request reception is received from the access point 2, when it has moved from the outside of this service area.
0016 The move station 1 memorizes an identifier (ID) to the inside, and adds the identifier to the connection request to the access point 2. As an identifier of the move station 1, when the interface protocol of cable LAN sets to Ethernet and IEEE802.3, for example, it is most effective to assign the MAC Address which is an address of a meaning on a network as an identifier of a move station.
0017 While the access point 2 is a device which performs radio transmission and reception with the move station 1, it has a function equivalent to the bridge which connects basic sir BIRUERIA (Basic Service Area:BSA) and backbone LAN (cable LAN) of radio. That is, the header for cable LAN is added to the data received from between non-railroad sections, and it sends out to cable LAN, or the header for between non-railroad sections is added to the data conversely received from cable LAN, and it sends out between non-railroad sections.
0018 And the access point 2 has memorized the access point number inside as a self identifier, into the header for cable LAN, incorporates an access point number and transmits.
0019 It is connected with the access point 2 via cable LAN, and the control device 3 controls the connection permission of the move station 1 in the access point 2.
0020 As the composition inside the control device 3 is shown in drawing 1, it comprises the control section 30 and the storage parts store 31, and the number management table 31a of permission, refusal ID management table 31b, and the move station management table 31c are memorized by the storage parts store 31.
0021 The number management table 31a of permission is a table which manages the number of a connection permission of the move station 1, and the junction state of the move station 1 every access point 2.
0022 The number management table 31a of permission of this invention comprises:
It is the offset a as shown in drawing 2.
Access point number b.
The number c of permission.
A several d connection pedestal.
Drawing 2 is a figure showing the example of a format and the example of storing of the number management table 31a of permission which are memorized by the control device 3 of this invention.
0023 The offset a is a sequential number for several minutes of the access point 2 connected to this wireless LAN system by cable LAN. While the access point number b is an identifier of the access point 2, it shows a BSA number.

0024 The number c of permission memorizes the number of a connection permission of the move station 1 in the access point 2 set up beforehand as connection permission conditions. When the number c of permission is set as 0, connection of the move station 1 in this access point 2 is refused unconditionally. A several d connection pedestal memorizes the number of connection pedestals of the actual condition in the access point 2.

0025 Refusal ID management table 31b is a table which manages the identifier (ID) of the move station 1 which refuses connection every access point 2.

0026 Refusal ID management table 31b of this invention comprises:

It is the offset e as shown in drawing 3.

Access point number f.

Refusal IDg.

Drawing 3 is a figure showing the example of a format and the example of storing of refusal ID management table 31b which are memorized by the control device 3 of this invention.

0027 The offset e is a sequential number for several refusal ID minutes set up to the access point 2 connected to this wireless LAN system by cable LAN. While the access point number f is an identifier of the access point 2, it shows a BSA number. The refusal IDg is an identifier (ID) of a move station which refuses connection in the access point 2 as connection permission conditions.

0028 The move station management table 31c comprises the offset h, the access point number i and move station identifier j, and connection-timer k, as shown in drawing 4. Drawing 4 is a figure showing the example of a format and the example of storing of the move station management table 31c which are memorized by the control device 3 of this invention.

0029 The offset h is a sequential number for several minutes of the move station 1 connected to the access point 2 connected to this wireless LAN system by cable LAN. While the access point number i is an identifier of the access point 2, it shows a BSA number.

0030 Move station identifier j is an identifier (ID) of the move station 1 connected in the access point 2. Connection-timer k is a timer which manages the connected state of the move station 1 under connection with the access point 2, and, specifically, has managed the time to registration cancellation.

0031 And when the control device 3 is new and receives the connection request from the move station 1 via the access point 2 actually, The access point number i and move station identifier j are memorized, the specific time (the maximum long time to registration cancellation) beforehand provided in connection-timer k is set up, and the decrement of the time of connection-timer k is carried out one by one henceforth.

0032 And if the time of connection-timer k is set to 0, it will be judged that it was no longer a connected state, and the record will be deleted from the move station management table 31c. If before deletion has a connection request from the same access point number i and move station identifier j again, the maximum long time to registration cancellation will be set and reset by connection-timer k then.

0033 The control section 30 controls the connection permission of the move station 1 in the access point 2, and specifically, Connection-admission-control processing which controls the connection permission to the connection request from the move station 1 received via the access point 2, and move station management processing which manages the move station 1 connected to the access point 2 under management are performed.

0034 First, it explains flowing into connection-admission-control processing of the control section 30 using drawing 5. Drawing 5 is a flow chart figure showing the flow of the connection-admission-control processing in the control section 30 of the control device 3 of this invention.

0035 The connection-admission-control processing in the control section 30 of the control device 3 of this invention, Will be started if a connection request is received from the access point 2, and a connection request judges in the right (100), and a right case (Yes), It is judged whether an access point number with a connection request and the combination of the move station identifier are registered into the move station management table 31c (101).

0036 And when not registered, (No) refers to the number management table 31a of permission, It judges whether the number of permission corresponding to the number of the access point 2 which transmitted the connection request is 0 (102), and when it is not 0 (Yes), it is judged whether the number of connection pedestals corresponding to the number of the access point 2 is smaller than the number of permission (104).

0037 And when the number of connection pedestals is smaller than the number of permission, (Yes), With reference to refusal ID management table 31b, it is judged whether ID of the move station 1 is refusal ID corresponding to the number of the access point 2 (106), If it is not

refusal ID (Yes), connection-request reception is transmitted to the access point 2 (110), and it will add to the number of connection pedestals in the number management table 31a of permission one, and will update (120), registration to the move station management table 31c will be performed (122), and connection-admission-control processing will be ended.

0038 Here, the registration to the move station management table 31c is processing which sets the maximum long time to the registration cancellation which stores in the move station management table 31c the access point number i and move station identifier j which transmitted the connection request, and is defined further beforehand as connection-timer k.

0039 On the other hand, in the processing 101, when registering with the move station management table 31c (Yes), Connection-request reception is transmitted to the access point 2 (130), the maximum long time to registration cancellation is set up and reset to connection-timer k of the move station identifier of the move station management table 31c concerned (132), and connection-admission-control processing is ended.

0040 When a connection request is not right in the processing 100 and the number of permission is 0 in (No) and the processing 102, on the other hand, (No), When the number of connection pedestals is not smaller than the number of permission in the processing 104 and it is refusal ID in (No) and the processing 106, (No) transmits connection-request refusal to the access point 2 (112), and ends connection-admission-control processing.

0041 Judged, in processing of drawing 5, when it was not registered whether the access point number which transmitted the connection request, and the combination of the move station identifier are registered into the move station management table 31c, it progressed to the processing 102 as new, but. When arbitrary move station identifiers are registered in combination with another access point, The record is deleted for the registration concerned from the move station management table 31c, and one, after subtracting and updating, if it is made to progress to the processing 102, the number of connection pedestals can be more strictly managed for the number of connection pedestals in the access point concerned in the number management table 31a of permission.

0042 Although the above-mentioned explanation described that ID of the move station 1 which refuses connection was registered into refusal ID management table 31b, and the connection request from registered ID was refused, Conversely, ID of the move station 1 which permits connection is registered, and you may make it only registered ID permit registration.

0043 Next, it explains flowing into the move station management processing of the control section 30 using drawing 6. Drawing 6 is a flow chart figure showing the flow of the move station management processing in the control section 30 of the control device 3 of this invention. Drawing 6 shows the processing to one move station registered into the move station management table 31c, and will repeat the same processing to all the registered move stations actually.

0044 The move station management processing in the control section 30 of the control device 3 of this invention, It is started for every update-units time of connection-timer k set up beforehand, and only update-units time subtracts connection-timer k of the move station management table 31c (202), It judges whether the value of connection-timer k was set to 0 (204), and when it is not 0, (No) ends move station management processing.

0045 On the other hand, when the value of connection-timer k is set to 0, registration is erased (210), the several d connection pedestal of the number management table 31a of permission about the access point of the move station concerned is subtracted from the move station management table 31c one time (212), and move station management processing is ended.

0046 Next, operation of the wireless LAN system of this invention is explained using drawing 1 and drawing 7. Drawing 7 is an explanatory view showing the connect control sequence of the move station 1 in the wireless LAN system of this invention. In the wireless LAN system of this invention, when the power supply of the move station 1 is turned on under BSA which a certain access point 2 manages, when the move station 1 has moved from the outside of this BSA, the connection request containing a self identifier (ID) is transmitted to the access point 2.

0047 The access point 2 which received the connection request from the move station 1 adds the access point number of self to a connection request, and transmits to the control device 3.

0048 And the control device 3 which received the connection request from the access point 2, as connection-admission-control processing, confirming processing of a connection request is performed and connection is possible -- if it is (O.K.), connection-request reception will be replied to the access point 2 by return, and if it is a connection refusal (NG), connection-request refusal will be replied to the access point 2 by return.

0049 Here, as confirming processing of a connection request, the contents of the connection

request are right, and when the combination of the move station 1 and the access point 2 which carried out the connection request is already registered into the move station management table 31c, it judges with connection being only possible. When not registering with the move station management table 31c, the propriety of connection is judged according to the number of permission and refusal ID which are the terms of the license set up beforehand, and if connection is possible, the number of connection pedestals of the number management table 31a of permission will be added one time.

0050 In the control device 3, in order to manage the number of permission which is one of the terms of the license, the junction state of the move station 1 connected to the access point 2 is managed. That is, if a connection request comes from the access point 2, the maximum long time to registration cancellation will be set as the move station management table 31c as a connection timer with an access point number and a move station identifier.

0051 And if the value of a connection timer is subtracted for every update-units time and it is set to 0, registration will be erased and the number of connection pedestals of the number management table 31a of permission will also be reduced.

0052 And the access point 2 which received connection-request reception or connection-request refusal replies the connection-request reception or connection-request refusal to the move station 1.

0053 If according to the wireless LAN system of this invention the number of a connection permission for every access point 2 is beforehand memorized to the storage parts store 31 in the control device 3 and the control device 3 receives the connection request from the move station 1 by access point 2 course, Since connection-request reception is returned to the move station 1 when the terms of the license whether the number of connection pedestals is within the limits of the number of a connection permission are judged about the access point 2 concerned and it conforms to terms of the license, The number of the move stations 1 which connects every access point 2 can be restricted, the fall of the transceiver throughput between the move station 1 and the access point 2 can be controlled, and there is an effect which makes possible traffic control in the whole wireless LAN system.

0054 According to the wireless LAN system of this invention, refusal ID or permission ID for every access point 2 is beforehand memorized to the storage parts store 31 in the control device 3, If the control device 3 receives the connection request from the move station 1 by access point 2 course, About the access point 2 concerned. **whether the move station 1 concerned is refusal ID in the access point 2, and** Or since connection-request reception is returned to the move station 1 when the terms of the license whether to be permission ID are judged and it conforms to terms of the license, It is effective in being realizable of proper connection of the move station in a specific area by eliminating connection of the unsuitable move station 1, or connecting the proper move station 1 to the move station 1 connected every access point 2.

0055 There is an effect which can cancel penetration of the unjust terminals in the case of connecting radio to electric telecommunication lines via the insecurity to the security resulting from considering it as the transmission medium, for example, a network, etc., incorrect fee collection, erroneous connection, etc. by managing connection with this system for every move station.

Brief Description of the Drawings

Drawing 1 It is a configuration block figure of the wireless LAN system concerning this invention.

Drawing 2 It is an explanatory view showing the example of a format and the example of storing of the number management table of permission which are memorized by the control device of this invention.

Drawing 3 It is an explanatory view showing the example of a format and the example of storing of a refusal ID management table which are memorized by the control device of this invention.

Drawing 4 It is an explanatory view showing the example of a format and the example of storing of a move station management table which are memorized by the control device of this invention.

Drawing 5 It is a flow chart figure showing the flow of the connection-admission-control processing in the control section of the control device of this invention.

Drawing 6 It is a flow chart figure showing the flow of the move station management processing in the control section of the control device of this invention.
Drawing 7 It is an explanatory view showing the connect control sequence of the move station in the wireless LAN system of this invention.
Drawing 8 It is a block diagram showing the outline composition of the conventional wireless LAN system.
Description of Notations
1 -- **A control section and 31 / -- A storage parts store and 31a / -- The number management table of permission, and 31b / -- A refusal ID management table, 31c / -- Move station management table** -- A move station and 2 -- An access point and 3 -- A control device and 30

Drawing 1

For drawings please refer to the original document.

Drawing 2

For drawings please refer to the original document.

Drawing 3

For drawings please refer to the original document.

Drawing 4

For drawings please refer to the original document.

Drawing 5

For drawings please refer to the original document.

Drawing 6

For drawings please refer to the original document.

Drawing 7

For drawings please refer to the original document.

Drawing 8

For drawings please refer to the original document.

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